

## Michigan Merit Curriculum

## Mathematics Course/Credit Requirements

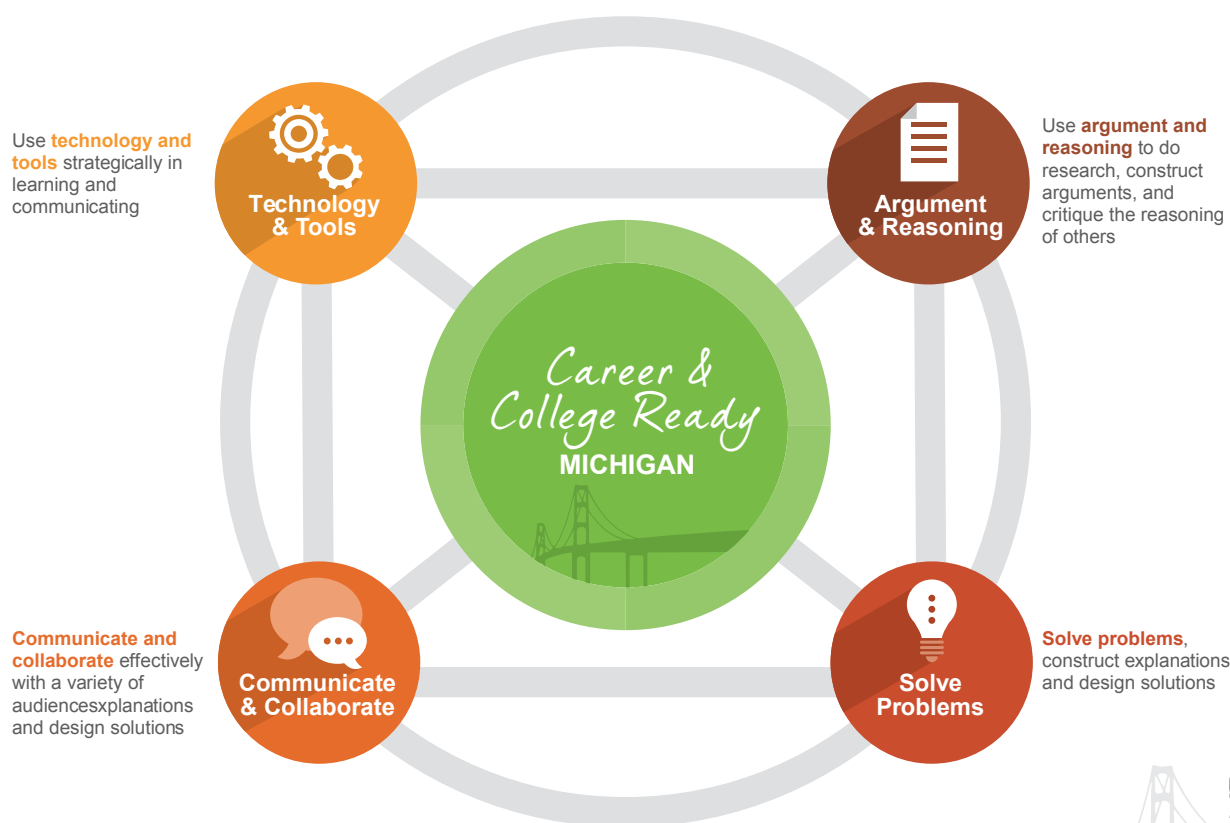
### A Career and College Ready Agenda

"Our state took a major leap forward in 2004, with the release of new grade level content expectations in K-8 English Language Arts (ELA) and mathematics. At the time of their release these expectations were considered some of the most rigorous in the nation. Two years later we adopted a rigorous new set of statewide graduation requirements designed to ensure that all students graduate from high school career- and college-ready. No longer is it acceptable to graduate high school with credit based on seat time. Instead, all Michigan students are required to demonstrate proficiency in required academic standards in order to receive a diploma.

By the end of 2008, Michigan had K-12 content expectations in ELA, mathematics, science, and social studies as well the visual and performing arts, physical education/health, and world languages. Subsequent adoption in June 2010

of the Common Core State Standards (CCSS) in mathematics and ELA served to validate Michigan's already rigorous standards in these content areas, as evidenced by key crosswalk documents. Although in some cases content shifted grades, essentially the content required by the Common Core was already represented in Michigan's content expectations. This past year, in a message to the Michigan Legislature, Governor Snyder proposed a new public school learning model: students should be able to learn "Any Time, Any Place, Any Way, Any Pace." These shifts have put a spotlight on the need for teaching rigorous content with multiple access points and opportunities for success. Our challenge now is to support schools with instituting systems of instruction that provide all students with opportunities to learn this content."

From Michigan's ESEA Flexibility Request (pg.23); [http://www.michigan.gov/mde/0,4615,7-140-37818\\_60094---,00.html](http://www.michigan.gov/mde/0,4615,7-140-37818_60094---,00.html)



### Model Courses

There are varied pathways to help students successfully demonstrate proficiency in meeting the content defined by [Michigan's Mathematics Standards](#) for high school. These standards constitute the minimum content for earning 3 of the 4 required mathematics credits. The 4th credit is district-determined as to content and structure. Districts also determine how students may fulfill the final year mathematics or mathematics-related course/experience requirement. More information is available in the FAQ posted at [www.michigan.gov/highschool](http://www.michigan.gov/highschool).

Michigan doesn't require end-of-course exams; the only state-required high-school assessment is the Michigan Merit Exam (MME), administered at the end of a student's junior year. This provides districts with flexibility in designing courses that fulfill the needs of their student population. The two models listed below suggest ways that required standards can be arranged into a 3-credit sequence of instruction. Other models might be available through your ISD/RESA. Texts and other curriculum materials may also serve as course models if they address all of the required standards, including the Standards for Mathematical Practice.

### Models

- [Tools for the Common Core Standards](#) blog provides course models developed by mathematics education experts.
- [Designing High School Mathematics Courses Based on the Common Core State Standards](#): Appendix A of Common Core State Standards Mathematics document.

### Career & College Ready Instruction

Arranging the content represented by the standards into courses is just one step in implementing the new standards. The [Standards for Mathematical Practice](#) describe varieties of expertise that mathematics educators at all levels should seek to develop in their students.

These practices rest on important “processes and proficiencies” with longstanding importance in mathematics education: the National Council of Teachers of Mathematics (NCTM) process standards of problem solving, reasoning and proof, communication, representation, and connections; and the strands of mathematical proficiency specified in the National Research Council's report *Adding It Up*. Mathematics learning opportunities should be carefully designed so that students have plenty of opportunities to engage in these practices.

### Mathematical Practices

- 1 Make sense of problems and persevere in solving them.
- 2 Reason abstractly and quantitatively.
- 3 Construct viable arguments and critique the reasoning of others.
- 4 Model with mathematics.
- 5 Use appropriate tools strategically.
- 6 Attend to precision.
- 7 Look for and make use of structure.
- 8 Look for and express regularity in repeated reasoning.